Appendix K – Analysis data by national forest and BLM district office

Table K-1. Precommercial thinning possible during next decade

	Scheduled in lynx habitat	Scheduled outside lynx habitat	Total scheduled
NATIONAL FOREST			
Idaho			
Clearwater	5,510 acres	7,970 acres	13,480 acres
Idaho Panhandle	80,890 acres	27,990 acres	108,880 acres
Nez Perce	12,370 acres	16,750 acres	29,120 acres
Salmon-Challis	22,000 acres	8,500 acres	30,500 acres
Targhee	36,800 acres	8,200 acres	45,000 acres
Montana			
Beaverhead-Deerlodge	21,280 acres	4,960 acres	26,240 acres
Bitterroot	510 acres	17,890 acres	18,400 acres
Custer	1,010 acres	10,840 acres	11,850 acres
Flathead	49,540 acres	2,300 acres	51,840 acres
Gallatin	26,300 acres	5,000 acres	31,300 acres
Helena	3,830 acres	0	3,830 acres
Kootenai	73,260 acres	50,770 acres	124,030 acres
Lewis and Clark	7,410 acres	720 acres	8,130 acres
Lolo	30,160 acres	9,530 acres	39,690 acres
Utah			
Ashley	7,710 acres	870 acres	8,580 acres
Wyoming			
Bighorn	3,000 acres	8,000 acres	11,000 acres
Bridger-Teton	9,500 acres	0	9,500 acres
Shoshone	4,250 acres	600 acres	4,850 acres
BUREAU OF LAND MANAGEMENT			
Idaho			
Lower Snake River	0	800 acres	800 acres
Upper Columbia	810 acres	2,630 acres	3,440 acres
Upper Snake River	0	500 acres	500 acres
Utah			
BLM-Salt Lake	0	0	0
TOTAL	396,140 acres	184,820 acres	580,960 acres

Acres are estimates rounded to the nearest ten and could change due to changing needs

Table K-2. Precommercial thinning by alternative

	Alternative A	Alternative B	Alternatives C & E	Alternative D
NATIONAL FOREST				
Idaho				
Clearwater	13,480 acres	7,970 acres	7,970 acres	11,550 acres
Idaho Panhandle	108,880 acres	28,150 acres	28,190 acres	101,680 acres
Nez Perce	29,120 acres	16,870 acres	16,870 acres	17,110 acres
Salmon-Challis	30,500 acres	8,720 acres	8,720 acres	14,520 acres
Targhee	45,000 acres	8,570 acres	8,570 acres	9,070 acres
Montana				
Beaverhead-Deerlodge	26,240 acres	4,960 acres	5,000 acres	26,240 acres
Bitterroot	18,400 acres	17,890 acres	17,940 acres	18,040 acres
Custer	11,850 acres	10,840 acres	10,840 acres	11,840 acres
Flathead	51,840 acres	2,800 acres	3,020 acres	35,960 acres
Gallatin	31,300 acres	5,260 acres	5,280 acres	6,310 acres
Helena	3,830 acres	0	40 acres	920 acres
Kootenai	124,030 acres	50,770 acres	51,010 acres	119,240 acres
Lewis and Clark	8,130 acres	720 acres	740 acres	740 acres
Lolo	39,690 acres	9,830 acres	10,830 acres	21,680 acres
Utah				
Ashley	8,580 acres	1,110 acres	1,100 acres	1,880 acres
Wyoming				
Bighorn	11,000 acres	8,030 acres	8,030 acres	8,360 acres
Bridger-Teton	9,500 acres	0	0	9,500 acres
Shoshone	4,850 acres	600 acres	600 acres	2,730 acres
BUREAU OF LAND MANAGEMENT				
Idaho				
Lower Snake River	800 acres	800 acres	800 acres	800 acres
Upper Columbia	3,440 acres	2,630 acres	2,630 acres	2,630 acres
Upper Snake River	500 acres	500 acres	500 acres	500 acres
Utah				
Salt Lake	0	0	0	0
TOTAL	580,960 acres	187,010 acres	188,680 acres	421,300 acres

Table K-3. Precommercial thinning possible during next decade for research, genetic testing and fire-defensible space

	Research PCT		Genetic testing PCT		Defensible space PCT	
	In lynx habitat	Outside habitat	In lynx habitat	Outside habitat	In lynx habitat	Outside habitat
NATIONAL FOREST						
Idaho						
Clearwater	0	0	0	100 ac	0	0
Idaho Panhandle	0	20 ac	40 ac	50 ac	160 ac	1,120 ac
Nez Perce	0	0	0	60 ac	120 ac	170 ac
Salmon-Challis	0	0	0	0	220 ac	90 ac
Targhee	0	0	0	0	370 ac	410 ac
Montana						
Beaverhead-Deerlodge	0	0	40 ac	0	0	0
Bitterroot	50 ac	50 ac	0	50 ac	0	360 ac
Custer	0	0	0	0	0	220 ac
Flathead	180 ac	0	40 ac	0	500 ac	20 ac
Gallatin	20 ac	0	0	0	260 ac	0
Helena	0	0	40 ac	0	0	0
Kootenai	200 ac	0	40 ac	40 ac	0	1,520 ac
Lewis and Clark	0	0	20 ac	0	0	0
Lolo	1,000 ac	0	0	20 ac	300 ac	100 ac
Utah						
Ashley	0	0	0	0	230 ac	0
Wyoming						
Bighorn	0	10 ac	0	0	30 ac	160 ac
Bridger-Teton	0	0	0	0	0	0
Shoshone	0	0	0	0	0	0
BUREAU OF LAND MANAGEMENT						
Idaho						
Lower Snake River	0	0	0	0	0	0
Upper Columbia	0	0	0	0	0	0
Upper Snake River	0	0	0	0	0	0
Utah						
Salt Lake	0	0	0	0	0	0
TOTAL	1,450 ac	80 ac	220 ac	320 ac	2,190 ac	4,170 ac

Acres are estimates rounded to the nearest ten, and could change based on changing needs

Table K-4. Precommercial thinning possible during next decade for planted white pine, whitebark pine and quaking aspen

	Planted white pine		Whitebark pine		Quaking aspen	
	In lynx habitat	Outside habitat	In lynx habitat	Outside habitat	In lynx habitat	Outside habitat
NATIONAL FOREST						
Idaho						
Clearwater	1,930 ac	3,990 ac	0	0	0	0
Idaho Panhandle	36,400 ac	10,920 ac	2,950 ac	0	730 ac	0
Nez Perce	0	0	0	250 ac	0	0
Salmon-Challis	0	0	300 ac	0	1100 ac	430 ac
Targhee	0	0	500 ac	0	0	0
Montana						
Beaverhead-Deerlodge	0	0	0	0	220 ac	50 ac
Bitterroot	0	0	0	0	0	0
Custer	0	0	1,000 ac	0	0	220 ac
Flathead	740 ac	30 ac	0	0	0	0
Gallatin	0	0	1,000 ac	0	30	0
Helena	0	0	500 ac	0	190 ac	0
Kootenai	11,720 ac	4,570 ac	1,560 ac	0	0	2,030 ac
Lewis and Clark	0	0	0	0	0	0
Lolo	300 ac	100 ac	300 ac	0	300 ac	100 ac
Utah						
Ashley	0	0	0	0	390 ac	0
Wyoming						
Bighorn	0	0	0	0	90 ac	240 ac
Bridger-Teton	0	0	1,000 ac	0	0	0
Shoshone	0	0	0	0	0	0
BUREAU OF LAND MANAGEMENT						
Idaho						
Lower Snake River	0	0	0	0	0	0
Upper Columbia	0	0	0	0	0	0
Upper Snake River	0	0	0	0	0	0
Utah						
Salt Lake	0	0	0	0	0	0
TOTAL	51,090 ac	19,610 ac	9,110 ac	250 ac	3,050 ac	3,070 ac

Acres are estimates rounded to the nearest five, and could change based on changing needs

Table K-5. Precommercial thinning possible during next decade for ponderosa pine, western larch, lodgepole pine

	Ponderosa pine		Western larch		Lodgepole pine	
	In lynx habitat	Outside habitat	In lynx habitat	Outside habitat	In lynx habitat	Outside habitat
NATIONAL FOREST						
Idaho						
Clearwater	0	800 ac	1,650 ac	1,590 ac	0	0
Idaho Panhandle	1,700 ac	3,360 ac	31,550 ac	8,960 ac	160 ac	60 ac
Nez Perce	120 ac	1,680 ac	120 ac	1,340 ac	0	0
Salmon-Challis	2,200 ac	850 ac	0	0	2,200 ac	850 ac
Targhee	0	0	0	0	0	0
Montana						
Beaverhead-Deerlodge	0	100 ac	0	0	21,020 ac	4,810 ac
Bitterroot	100 ac	13,600 ac	0	1,070 ac	0	0
Custer	0	10,400 ac	0	0	0	0
Flathead	4950 ac	1,150 ac	27,250 ac	920 ac	0	0
Gallatin	0	200 ac	0	0	0	0
Helena	0	0	190 ac	0	0	0
Kootenai	2,200 ac	12,160 ac	52,750 ac	30,450 ac	0	0
Lewis and Clark	0	180 ac	0	0	0	0
Lolo	300 ac	2,860 ac	9,650 ac	950 ac	0	0
Utah						
Ashley	0	870 ac	0	0	390 ac	0
Wyoming						
Bighorn	90 ac	240 ac	0	0	150 ac	400 ac
Bridger-Teton	0	0	0	0	8,500 ac	0
Shoshone	0	0	0	0	2,130 ac	300 ac
BUREAU OF LAND MANAGEMENT						
Idaho						
Lower Snake River	0	0	0	0	0	0
Upper Columbia	0	0	0	0	0	0
Upper Snake River	0	0	0	0	0	0
Utah						
Salt Lake	0	0	0	0	0	0
TOTAL	11,660 ac	48,450 ac	123,160 ac	45,280 ac	34,550 ac	6,420 ac

Acres are estimates rounded to the nearest 10, and could change based on changing needs

Table K-6. Acres of precommercial thinning by alternative during next decade, full funding compared to historic average funding

	Alternative A		Alternative B		Alternatives C & E		Alternative D	
	Full funding	Historic average	Full funding	Historic average	Full funding	Historic average	Full funding	Historic average
NATIONAL FOREST								
Idaho								
R1 Clearwater	13,480	4,310	7,970	2,550	7,970	2,550	11,550	3,670
R1 Idaho Panhandle	108,880	34,840	28,150	9,010	28,190	9,020	101,680	32,540
R1 Nez Perce	29,120	9,320	16,870	5,400	16,870	5,400	17,110	5,480
R4 Salmon-Challis	30,500	11,290	8,720	3,230	8,720	3,230	14,520	5,370
R4 Targhee	45,000	16,650	8,570	3,170	8,570	3,170	9,070	3,360
Montana								
R1 Beaverhead-Deerlodge	26,240	8,400	4,960	1,590	5,000	1,600	26,240	8,400
R1 Bitterroot	18,400	5,890	17,890	5,730	17,940	5,740	18,040	5,770
R1 Custer	11,850	3,790	10,840	3,470	10,840	3,470	11,840	3,790
R1 Flathead	51,840	16,590	2,800	900	3,020	970	35,960	11,510
R1 Gallatin	31,300	10,020	5,260	1,680	5,280	1,690	6,310	2,020
R1 Helena	3,830	1,230	0	0	40	10	920	290
R1 Kootenai	124,030	39,690	50,770	16,250	51,010	16,320	119,240	38,160
R1 Lewis and Clark	8,130	2,600	720	230	740	240	740	240
R1 Lolo	39,690	12,700	9,830	3,150	10,830	3,470	21,680	6,940
Utah								
R4 Ashley	8,580	3,180	1,100	410	1,100	410	1,880	700
Wyoming								
R2 Bighorn	11,000	6,600	8,030	4,820	8,030	4,820	8,360	5,020
R4 Bridger-Teton	9,500	3,520	0	0	0	0	9,500	3,520
R2 Shoshone	4,850	2,910	600	360	600	360	2,730	1,640
BUREAU OF LAND MANAGEMENT								
Idaho								
Lower Snake River	800	800	800	800	800	800	800	800
Upper Columbia	3,440	3,440	2,630	2,630	2,630	2,630	2,630	2,630
Upper Snake River	500	500	500	500	500	500	500	500
Utah								
Salt Lake	0	0	0	0	0	0	0	0
TOTAL	580,960	198,270	187,010	65,880	188,680	66,400	421,300	142,350

Before the Canada lynx was listed as a threatened species, Congress funded units in the amendment area to do about 20,000 acres of precommercial thinning a year -- amounts varied somewhat from year to year. FS Regions 1 and 4 both had many acres scheduled to be thinned, but were funded to do only about 30 to 40 percent. FS Region 2 had a smaller program and was funded to do about 60 percent. The BLM had quite a small program, which was entirely funded.

	FS R1	FS R2	FS R4	BLM	Total/average
1994-1998 average acres funded	15,000	1,000	3,600	500	20,000
Percent funded	32%	60%	37%	100%	34%

Table K-7. Grazing allotments

				Active allotments with lynx habitat			
	Number of allotments	With lynx habitat	Active with lynx habitat	Less than 25 percent	From 25 to 50 percent	More than 50 percent	With similar direction‡
NATIONAL FOREST							
Idaho							
Clearwater	17	0	0	0	0	0	0
Idaho Panhandle	11	9	8	1	2	5	6
Nez Perce	29	15	12	3	3	6	12
Salmon-Challis	114	85	85	49	27	9	85
Targhee	145	100	86	8	24	54	86
Montana							
Beaverhead-Deerlodge	318	318	315	91	80	144	315
Bitterroot	20	19	15	9	2	4	15
Custer	133	24	24	13	4	7	24
Flathead	20	19	11	0	3	8	11
Gallatin	98	98	94	20	36	38	0
Helena	88	88	75	27	30	18	25
Kootenai	44	27	17	7	3	7	17
Lewis and Clark	269	146	143	21	11	111	73
Lolo	36	18	13	2	5	6	13
Utah							
Ashley	68	68	51	6	19	26	51
Wyoming							
Bighorn	106	61	59	13	23	23	59
Bridger-Teton	278	278	236	0	236	0	236
Shoshone	84	47	45	21	14	10	10
BUREAU OF LAND MANAGEMENT							
Idaho							
Lower Snake River	300	0	0	0	0	0	0
Upper Columbia	327	327	326	315	6	5	326
Upper Snake River	1,241	13	13	13	0	0	13
Utah							
Salt Lake	5	5	5	3	2	0	5
Totals	3,751	1,765	1,633	622	530	481	1,384

‡ *Similar direction* includes plan standards for riparian habitat protection or other management direction for grazing

Table K-8. Designated or groomed winter routes and designated play areas

	All groomed or designated routes	Inside lynx habitat			
		Groomed or designated routes	Average designated routes groomed/year	Designated routes that could be groomed	Designated play areas (Number & acres)
NATIONAL FOREST					
Idaho					
Clearwater	1,025 miles	500 miles	425 miles	75 miles	0
Idaho Panhandle	1,450 miles	975 miles	475 miles	500 miles	0
Nez Perce	2,275 miles	1,075 miles	275 miles	775 miles	0
Salmon-Challis	1,500 miles	1,125 miles	225 miles	900 miles	0
Targhee	1,000 miles	400 miles	400 miles	0	0
Montana					
Beaverhead-Deerlodge	1,000 miles	575 miles	275 miles	300 miles	0
Bitterroot	250 miles	100 miles	25 miles	75 miles	0
Custer	50 miles	25 miles	0	25 miles	0
Flathead	175 miles	175 miles	175 miles	0	0
Gallatin	425 miles	350 miles	305 miles	50 miles	0
Helena	375 miles	275 miles	200 miles	75 miles	2 in 3,750 acres
Kootenai	425 miles	250 miles	175 miles	75 miles	0
Lewis & Clark	825 miles	600 miles	225 miles	400 miles	2 in 300 acres
Lolo	700 miles	375 miles	300 miles	75 miles	0
Wyoming					
Bighorn	425 miles	50 miles	25 miles	25 miles	0
Bridger-Teton	850 miles	850 miles	750 miles	100 miles	0
Shoshone	500 miles	150 miles	100 miles	50 miles	0
Utah					
Ashley	125 miles	125 miles	120 miles	0	0
BUREAU OF LAND MANAGEMENT UNITS					
Idaho					
Upper Snake River	0	0	0	0	0
Lower Snake River	0	0	0	0	0
Upper Columbia/Salmon	50 miles	25 miles	25 miles	0	0
Utah					
Salt Lake	0	0	0	0	0
Total	13,425 miles	8,000 miles	4,500 miles (56%)	3,500 miles (44%)	4 in 4,050 acres

The table contains estimated miles for each unit rounded to the nearest 25.
The baseline miles need to be established by each unit once a decision is made.
The lynx amendment is not setting these as baseline figures.

Table K-9. Recreation special use permits and agreements

	Recreation SUP's & agreements	Winter recreation SUP's and agreements	Winter recreation SUP's and agreements in lynx habitat
NATIONAL FOREST			
Idaho			
Clearwater	37	6	3
Idaho Panhandle	195	25	24
Nez Perce	64	17	15
Salmon-Challis	114	14	14
Targhee	325	24	21
Montana			
Beaverhead-Deerlodge	28	4	4
Bitterroot	211	7	7
Custer	17	0	0
Flathead	201	8	8
Gallatin	376	30	30
Helena	58	8	6
Kootenai	61	19	19
Lewis and Clark	21	21	21
Lolo	141	24	20
Utah			
Ashley	24	2	2
Wyoming			
Bighorn	343	86	85
Bridger-Teton	227	39	39
Shoshone	279	25	20
BUREAU OF LAND MANAGEMENT			
Idaho			
Lower Snake River	0	0	0
Upper Columbia	0	0	0
Upper Snake River	0	0	0
Utah			
Salt Lake	0	0	0
Total	2,722	359 (15%)	338 (94%)

Table K-10. Cross-country and downhill ski areas operating under special use permit

		Inside lynx habitat			
	Ski areas	Number	Acres	Planning expansion	New areas planned
NATIONAL FOREST					
Idaho					
Clearwater	0	0	0	0	0
Idaho Panhandle †	2	0	0	1	0
Nez Perce	1	0	0	0	0
Salmon-Challis ‡	1	1	1,401 acres	1	0
Targhee	2	2	974 acres	2	0
Montana					
Beaverhead-Deerlodge	2	2	1,999 acres	1	0
Bitterroot ‡	0	0	0	0	0
Custer	1	1	1,288 acres	1	0
Flathead	6	5	3,749 acres	1	0
Gallatin	2	2	956 acres	1	0
Helena	3	2	320 acres	0	0
Kootenai	3	1	2,640 acres	1	1
Lewis & Clark	3	3	1,498 acres	1	0
Lolo †	3	2	1,412 acres	1	0
Wyoming					
Bighorn	6	1	400 acres	1	0
Bridger-Teton	5	5	4,620 acres	0	0
Shoshone	10	1	2 acres	0	0
Utah					
Ashley	0	0	0	0	0
BUREAU OF LAND MANAGEMENT					
Idaho					
Upper Snake River	2	0	0	0	0
Lower Snake River	0	0	0	0	0
Upper Columbia/Salmon	1	1	8,000 acres	0	0
Utah					
Salt Lake Office	0	0	0	0	0
Total	53	29	29,259 acres	12	1

† The Idaho-Panhandle and Lolo national forests both have parts of the Lookout Pass ski area in their administrative boundaries. On this report, it's listed under the Lolo in Montana.

‡ The Salmon-Challis and Bitterroot national forests both have parts of the Lost Trail ski area in their administrative boundaries. On this report, it's listed under the Salmon Challis in Idaho.

Table K-11. Mining operations and wells in lynx habitat

	Wells in last 10 years		Foreseeable	Minerals operations	
	Drilled	Outside habitat	wells	Percent	Name
NATIONAL FOREST					
Idaho					
Clearwater	0	0	0	0	-
Idaho Panhandle	0	0	0	0	-
Nez Perce	0	0	0	0	-
Salmon-Challis	0	0	0	0	-
Targhee	0	0	0	0	-
Montana					
Beaverhead-Deerlodge	0	0	0	2%	Beal & Golden Jubilee
Bitterroot	0	0	0	0	-
Custer	1	0	2	1%	Stillwater
Flathead	0	0	0	0	-
Gallatin	0	0	0	1%	East Boulder
Helena	0	0	0	2-3%	-
Kootenai	0	0	0	1%	Troy
Lewis and Clark	0	0	2	0	-
Lolo	0	0	0	1-5%	-
Utah					
Ashley	0	0	3	1	-
Wyoming					
Bighorn	0	0	0	0	-
Bridger-Teton	0	Several	0	0	-
Shoshone	0	1	1	0	-
BUREAU OF LAND MANAGEMENT					
Idaho					
Lower Snake River	0	0	0	0	-
Upper Columbia	0	0	0	0	-
Upper Snake River	0	0	0	0	-
Utah					
Salt Lake	0	0	0	0	-
Total	1	1	8+	-	-

Table K-12. Forest roads in lynx habitat, part 1

			Paved 2+ lanes		Environmental paving	
	Maintenance level 2	Maintenance levels 3-5	Paved last 10 years	Planned next 10 years	Paved last 5 years	Planned next 5 years
NATIONAL FOREST						
Idaho						
Clearwater	299 miles	184 miles	0	0	0	0
Idaho Panhandle	1,166 miles	830 miles	0	0	0	0
Nez Perce	386 miles	372 miles	0	7.0 miles	0	0
Salmon-Challis	670 miles	420 miles	0	0	0	0
Targhee	138 miles	557 miles	2.2 miles	5.0 miles	0	0
Montana						
Beaverhead-Deerlodge	1,050 miles	741 miles	10.0 miles	5.0 miles	0	0
Bitterroot	120 miles	130 miles	0	0	0	0
Custer	95 miles	50 miles	0	6.6 miles	0	0
Flathead	500 miles	795 miles	0	0	0	1.0 miles
Gallatin	981 miles	202 miles	0.5 miles	8.0 miles	0	0
Helena	447 miles	168 miles	0	5.0 miles	0	0
Kootenai	400 miles	450 miles	0	0	1.0 miles	0
Lewis and Clark	327 miles	323 miles	0	0	0	0
Lolo	704 miles	621 miles	0	7.1 miles	0	0
Utah						
Ashley	211 miles	353 miles	0	1.7 miles	0	0
Wyoming						
Bighorn	125 miles	51 miles	0	0	0	0
Bridger-Teton	848 miles	624 miles	0	0	1.0 miles	1.0 miles
Shoshone	197 miles	58 miles	2.0 miles	0	0	0
BUREAU OF LAND MANAGEMENT						
Idaho						
Lower Snake River	0 miles	0	0	0	0	0
Upper Columbia	17	65 miles	0	0	0	0.
Upper Snake River	1	0	0	0	0	0
Utah						
Salt Lake	8	0	0	0	0	0
Total	8,690 miles	6,994 miles	14.7 miles	45.4 miles	2 miles	2 miles

Table K-13. Forest roads in lynx habitat, part 2

	New open last 5 years	New open planned next 5 years	Upgrades planned next 5 years	On ridge-top planned next 10 years
NATIONAL FOREST				
Idaho				
Clearwater	0.4 miles	0	7.2 miles	2.8 miles
Idaho Panhandle	0.7 miles	0	0	0
Nez Perce	0	0	0	0
Salmon-Challis	0	0	12.0 miles	0
Targhee	0.8 miles	2.5 miles	5.0 miles	0.2 miles
Montana				
Beaverhead-Deerlodge	0.3 miles	2.4 miles	1.5 miles	0
Bitterroot	0	0	0	0
Custer	0	0	14.0 miles	0
Flathead	2.0 miles	0	0	0
Gallatin	0	0	5.0 miles	2.0 miles
Helena	0	0	20.0 miles	0
Kootenai	0	0	4.0 miles	0
Lewis and Clark	0	0	0	0
Lolo	0	0	63.4 miles	0
Utah				
Ashley	0	0	1.7 miles	0
Wyoming				
Bighorn	0.2 miles	0	0	0
Bridger-Teton	10.0 miles	0	100.0 miles	2.0 miles
Shoshone	0	0	3.6 miles	0
BUREAU OF LAND MANAGEMENT				
Idaho				
Lower Snake River	0	0	0	0
Upper Columbia	0	4.0 miles	0	0
Upper Snake River	0	0	0	0
Utah				
Salt Lake	0	0	0	0
TOTAL	14.4 miles	8.9 miles	237.4 miles	7.0 miles

Table K-14. Economic effects of precommercial thinning restrictions after a decade, assuming full funding

	Alternative A		Alternative B		Alternatives C & E		Alternative D	
	Employment	Labor Income ($M)	Employment	Labor Income ($M)	Employment	Labor Income ($M)	Employment	Labor Income ($M)
NATIONAL FOREST								
Idaho								
Clearwater	155	$2,158	91	$1,276	91	$1,276	99	$1,385
Idaho Panhandle	1,195	$16,415	309	$4,244	309	$4,250	836	$11,483
Nez Perce	235	$3,281	136	$1,901	136	$1,901	138	$1,928
Salmon-Challis	320	$3,566	91	$994	91	$1,020	152	$1,698
Targhee	467	$5,196	89	$990	89	$990	94	$1,047
Montana								
Beaverhead-Deerlodge	309	$2,996	58	$566	59	$571	39	$2,996
Bitterroot	164	$1,359	159	$1,321	160	$1,325	160	$1,333
Custer	117	$1,405	107	$1,286	107	$1,286	117	$1,404
Flathead	421	$3,605	23	$195	25	$210	220	$1,881
Gallatin	185	$2,196	31	$369	31	$370	37	$441
Helena	34	$321	0	$0	0	$0	0	$0
Kootenai	1,004	$8,730	411	$3,574	413	$3,591	725	$6,304
Lewis and Clark	56	$688	5	$61	5	$61	5	$61
Lolo	402	$3,436	100	$851	110	$938	165	$1,408
Utah								
Ashley	27	$349	3	$45	3	$45	6	$76
Wyoming								
Bighorn	96	$1,113	70	$813	70	$813	73	$846
Bridger-Teton	96	$1,071	0	$0	0	$0	96	$1,071
Shoshone	27	$274	3	$34	3	$34	15	$154
BUREAU OF LAND MANAGEMENT								
Idaho								
Lower Snake River	8	$94	8	$94	8	$94	8	$94
Upper Columbia	38	$519	29	$397	29	$397	29	$397
Upper Snake River	5	$58	5	$58	5	$58	5	$58
Utah								
Salt Lake	0	$0	0	$0	0	$0	0	$0

Table K-15. Comparative employment and labor income effects after a decade of precommercial thinning restrictions, assuming full funding

	Employment effects			Labor income effects		
	Alt B vs Alt A	Alts C & E vs Alt A	Alt D vs Alt A	Alt B vs Alt A	Alts C & E vs Alt A	Alt D vs Alt A
NATIONAL FOREST						
Idaho						
Clearwater	-64	-64	-56	-$882	-$882	-$773
Idaho Panhandle	-886	-886	-359	-$12,171	-$12,165	-$4,932
Nez Perce	-99	-99	-97	-$1,380	-$1,380	-$1,353
Salmon-Challis	-229	-229	-168	-$2,546	-$2,546	-$1,868
Targhee	-378	-378	-373	-$4,206	-$4,206	-$4,149
Montana						
Beaverhead-Deerlodge	-251	-250	0	-$2,430	-$2,425	0
Bitterroot	-5	-4	-4	-$38	-$34	-$27
Custer	-10	-10	0	-$120	-$120	-$1
Flathead	-398	-396	-201	-$3,411	-$3395	-$1,724
Gallatin	-154	-154	-148	-$1,827	-$1,825	-$1,755
Helena	-34	-34	-34	-$321	-$321	-$321
Kootenai	-593	-591	-279	-$5,157	-$5,140	-$2,427
Lewis and Clark	-51	-51	-51	-$627	-$627	-$627
Lolo	-302	-292	-237	-$2,585	-$2,499	-$2,029
Utah						
Ashley	-24	-24	-21	-$304	-$304	-$272
Wyoming						
Bighorn	-26	-26	-23	-$301	-$301	-$267
Bridger-Teton	-96	-96	0	-$1,071	-$1,071	$0
Shoshone	-24	-24	-12	-$240	-$240	-$120
BUREAU OF LAND MANAGEMENT						
Idaho						
Lower Snake River	0	0	0	$0	$0	$0
Upper Columbia	-9	-9	-9	-$122	-$122	-$122
Upper Snake River	0	0	0	$0	$0	$0
Utah						
Salt Lake	0	0	0	$0	$0	$0

Table K-16. Economic effects of precommercial thinning restrictions after a decade, assuming historic average funding

	Alternative A		Alternative B		Alternatives C & E		Alternative D	
	Employ-ment	Labor Income ($M)	Employ-ment	Labor Income ($M)	Employ-ment	Labor Income ($M)	Employ-ment	Labor Income ($M)
NATIONAL FOREST								
Idaho								
Clearwater	50	$691	29	$408	29	$408	32	$443
Idaho Panhandle	382	$5,253	99	$1,358	99	$1,360	267	$3,675
Nez Perce	75	$1,050	44	$608	44	$608	44	$617
Salmon-Challis	118	$1,319	34	$377	34	$377	56	$628
Targhee	173	$1.922	33	$366	33	$366	35	$387
Montana								
Beaverhead-Deerlodge	99	$959	19	$181	19	$183	99	$959
Bitterroot	52	$435	51	$423	51	$424	51	$426
Custer	37	$450	34	$411	34	$411	37	$449
Flathead	135	$1,154	7	$62	8	$67	70	$602
Gallatin	59	$703	10	$118	10	$119	12	$141
Helena	11	$103	0	$0	0	$1	0	$25
Kootenai	321	$2,794	132	$1,144	132	$1,149	232	$2,017
Lewis and Clark	18	$220	2	$19	2	$20	2	$20
Lolo	129	$1,100	32	$272	35	$300	53	$451
Utah								
Ashley	10	$129	1	$17	1	$17	2	$28
Wyoming								
Bighorn	58	$668	42	$488	42	$488	44	$508
Bridger-Teton	36	$396	0	$0	0	$0	36	$396
Shoshone	16	$165	2	$20	2	$20	9	$93
BUREAU OF LAND MANAGEMENT								
Idaho								
Lower Snake River	8	$94	8	$94	8	$94	8	$94
Upper Columbia	38	$519	29	$397	29	$397	29	$397
Upper Snake River	5	$58	5	$58	5	$58	5	$58
Utah								
Salt Lake	0	$0	0	$0	0	$0	0	$0

Table K-17. Comparative employment and labor income effects after a decade of precommercial thinning restrictions, assuming historic average funding

	Employment effects			Labor income effects		
	Alt B vs Alt A	Alts C & E vs Alt A	Alt D vs Alt A	Alt B vs Alt A	Alts C & E vs Alt A	Alt D vs Alt A
NATIONAL FOREST						
Idaho						
Clearwater	-21	-21	-18	-$282	-$282	-$247
Idaho Panhandle	-283	-283	-115	-$3,895	-$3,893	-$1,578
Nez Perce	-31	-31	-31	-$442	-$442	-$433
Salmon-Challis	-84	-84	-62	-$942	-$942	-$691
Targhee	-140	-140	-138	-$1,556	-$1,556	-$1,535
Montana						
Beaverhead-Deerlodge	-80	-80	0	-$778	-$776	0
Bitterroot	-1	-1	-1	-$12	-$11	-$9
Custer	-3	-3	0	-$38	-$38	$0
Flathead	-128	-127	-65	-$1,091	-$1,086	-$552
Gallatin	-49	-49	-47	-$585	-$584	-$562
Helena	-11	-11	-11	-$103	-$102	-$78
Kootenai	-189	-189	-89	-$1,650	-$1,645	-$777
Lewis and Clark	-16	-16	-16	-$201	-$200	-$200
Lolo	-98	-94	-76	-$827	-$800	-$649
Utah						
Ashley	-9	-9	-8	-$112	-$112	-$101
Wyoming						
Bighorn	-16	-16	-14	-$180	-$180	-$160
Bridger-Teton	-36	-36	0	-$396	-$396	$0
Shoshone	-14	-14	-7	-$144	-$144	-$72
BUREAU OF LAND MANAGEMENT						
Idaho						
Lower Snake River	0	0	0	$0	$0	$0
Upper Columbia	-9	-9	-9	-$122	-$122	-$122
Upper Snake River	0	0	0	$0	$0	$0
Utah						
Salt Lake	0	0	0	$0	$0	$0

Appendix L – Cumulative effects

The following past, present, and reasonably foreseeable programmatic actions have or will affect units in the amendment area. These actions were used to evaluate the cumulative programmatic effects of the amendment. Several other actions were considered but were not included in the cumulative effects analysis because they either did not affect lynx habitat, or were not of the nature to have cumulative effects (see Project Record, Summary of actions reviewed for cumulative effects, where no cumulative effect was noted).

Existing land & resource management plans & land use plans, as amended

Existing plans form the baseline of effects. The effects of these plans have previously been determined and disclosed in appropriate NEPA documents.

Past programmatic amendments & federal policies that affect units in the amendment area

Past programmatic actions either amended existing plans, or added or changed higher-level policy that affected existing plans. Policy decisions have been incorporated into the CFRs (Code of Federal Regulations). Both amendments and policy decisions are listed because they changed management direction similar to the lynx amendment, or because they affected many existing plans in the amendment area.

Past amendments

PACFISH & INFISH

PACFISH (the 1994 Interim Strategies for Managing Anadromous Fish-producing Watersheds in Eastern Oregon and Washington, Idaho and Portions of California) and INFISH (the 1996 Inland Native Fish Strategies) amended plans, establishing management requirements within riparian habitat conservation areas that apply to all FS and BLM units with lynx habitat west of the Continental Divide. PACFISH and INFISH generally require retaining vegetation near streams and wetlands.

PACFISH and INFISH

- Improve habitat for wildlife, plant and aquatic species
- May reduce amount of area available for timber harvest
- May increase insect and disease in some areas
- May increase fuel buildup in some areas
- May reduce number of AUMs in grazing allotments or affect the timing of operations
- May increase costs for transportation systems, recreation sites, and mineral and energy development

OHV (off highway vehicle) amendment for Montana

In January 2001, this amendment applying to NF lands in Montana

established a new standard restricting yearlong, wheeled motorized cross-country travel where it was not already restricted, with certain exceptions.

The OHV amendment
- Improves habitat for wildlife, plant and aquatic species
- Has no effect on fire management, forest management, grazing, transportation systems, mineral and energy development, winter recreation or land acquisition

Past policy decisions

BLM Healthy Rangeland Initiative
This 1998 policy incorporated at 43 CFR 4180 the Healthy Rangeland standards and guidelines that describe how livestock grazing is managed on all BLM lands. The policy requires certain habitat conditions be provided for terrestrial and aquatic species.

The Healthy Rangeland Initiative
- Improves habitat for wildlife, including lynx, plant and aquatic species
- May reduce number of AUMs in grazing allotments or affect the timing of operations
- Has no effect on fire management, forest management, transportation systems, mineral and energy development, winter recreation or land acquisition

The Roads Policy
This 2001 policy incorporated at 36 CFR 212 provides the FS direction about its transportation system. Adopted after the LCAS was finalized, the Roads Policy gives managers a scientific analysis process to inform their decision-making. It directs the agency to maintain a safe, environmentally sound road network that's responsive to public needs and affordable to manage, where unneeded roads are decommissioned.

The Roads Policy generally has no effects since it is an analysis process. It's likely to improve habitat for wildlife, plant and aquatic species.

Roadless Area Conservation Strategy, "The Roadless Policy"
In January 2001, the Roadless Policy was incorporated at 36 CFR 294, prohibiting road construction and reconstruction, and timber removal in inventoried roadless areas on NF lands, with certain exceptions.

In May of 2001, a preliminary injunction was issued by the District Court of Idaho against implementing the Roadless Policy. This injunction was vacated by the 9th Circuit Court of Appeals. However, in July 2003, the District Court of Wyoming again enjoined implementation of the Roadless Policy. Therefore, the policy is not in effect.

Due to the pending litigation, interim management direction was issued July 27, 2001 regarding management of inventoried roadless areas (Interim Directive 1920-2001-1). This interim directive expired on June 14, 2003. Although the interim directive has expired the agency still intends to limit the amount of road construction in roadless areas.

The Roadless Policy, if fully implemented

- Improves habitat for wildlife, plant and aquatic species, so cumulatively contributes to the conservation of lynx
- May increase fire risk in unroaded lands because of reduced timber removal
- May change user recreational experiences
- May limit development of some ski areas
- May change which areas are available for mineral and energy development
- Would have only a limited affect on grazing, mostly by reducing the forage created by timber harvest
- Would have no effect on land acquisition

For this analysis, it is assumed that road construction in roadless areas would be limited; therefore many of the effects described in the Roadless Area Conservation EIS would still occur.

National Fire Plan

The 2000 National Fire Plan seeks to manage the impact of wildfires on communities and the environment by setting goals for wildland fire policy for the FS and BLM.

10-Year Comprehensive Strategy

The 2001 10-Year Comprehensive Strategy takes a collaborative approach to reducing wildland fire risks to communities and the environment for the FS, also setting goals for wildland fire policy.

Both the National Fire Plan and the 10-Year Comprehensive Strategy share goals to

- Improve fire prevention and suppression
- Promote community assistance
- Restore fire-adapted ecosystems (post-fire restoration)
- Reduce hazardous fuels

The Development of a Collaborative Fuel Treatment Program

The 2003 multiparty MOU (memorandum of understanding) describes a criterion for selecting FS fuel treatment projects, defining high-priority areas as the WUI (wildland urban interface) and forest Condition Classes 2 and 3 outside the WUI (see the *Fire* section in Chapter 3).

These documents do not prescribe specific outcomes; they are not programmatic decisions. They merely identify actions that should be taken to respond to the National Fire Plan.

Even though they don't specify outcomes, the direction set forth in these documents was considered in the effects analysis. Estimates, based on FIA data for Montana, were made to approximate the amount of lynx habitat that could be affected by fuel treatments and how the alternatives may affect implementing the National Fire Plan.

The National Fire Plan

- Is likely to improve habitat for some wildlife, plant and aquatic species and reduce habitat for others
- Likely will not effect on grazing, transportation systems, winter

recreation, land acquisition or mineral & energy development
- Is likely to reduce winter snowshoe hare habitat if treated areas are not allowed to re-grow densely

Energy Implementation Plan
The 2001 FS Energy Implementation Plan was written to implement elements of Executive Order 13212, *Actions to Expedite Energy Related Projects,* also called the National Energy Plan. The National Energy Plan encourages agencies to "…expedite their review of permits and or take other actions necessary to accelerate the completion of such projects, while maintaining safety, public health, and environmental protections…"

Priority areas were identified in areas with a high potential for energy development. The Custer, Ashley and Bridger-Teton NFs were identified as high priority in the planning area because they have oil and gas, even though the potential for oil and gas occurrence and development is rated low or very low. Further, most oil and gas leases take place outside lynx habitat.

The Energy Implementation Plan does not prescribe any specific outcome and is not a programmatic decision. It merely identifies actions that should be taken to respond to the National Energy Plan.

Even though it doesn't specify outcomes, the direction set forth was considered in the effects analysis. The National Energy Plan would have limited cumulative effects on resources in lynx habitat because most of the federal oil and gas leases occur outside lynx habitat.

Pending actions

Pending actions are programmatic actions where a decision has not yet been rendered, but are well into the planning process with reasonably foreseeable effects.

Forest Plan amendments for access management in the Selkirk and Cabinet/Yaak Grizzly Bear Recovery Zones
The Kootenai, Idaho Panhandle, and Lolo NFs have prepared a programmatic EIS to change existing plan objectives, standards and guidelines about motorized access in the Selkirk and Cabinet-Yaak Grizzly Bear Recovery Zones.

The preferred alternative, Alternative E, would set road densities and core areas for each BMU (bear management unit) reflecting the unique features of each BMU. A decision is expected by the end of the year.

The grizzly bear access management amendment
- Could improve habitat for wildlife, plant and aquatic species
- May increase fire risk lands where access is restricted
- Could reduce timber harvest
- Could reduce areas available for precommercial thinning
- May change recreational user experiences, especially where vegetation grows back in restricted roads

- Would not affect mineral and energy development, grazing or land acquisition

Forest Plan amendments for Grizzly Bear Habitat Conservation for the Greater Yellowstone Area National Forests

The Beaverhead, Bridger-Teton, Custer, Gallatin, Shoshone, and Targhee NFs are preparing a programmatic EIS to change existing plan objectives, standards and guidelines for management of grizzly bear habitat security, developed sites and livestock within the Grizzly Bear Recovery Area (*Federal Register*, Vol. 68, No. 136, pp. 41999-42000).

The proposed action would promote the continued recovery of the Yellowstone grizzly bear population. Forest-wide standards are proposed to (1) maintain secure habitat at 1998 levels through management of motorized access routes, with short-term deviations allowed under specific conditions, (2) do not exceed the number of commercial livestock allotments and the number of permitted domestic sheep Animal Months (AMs) from the 1988 level, and (3) manage developed sites at 1998 levels, with some exceptions for administrative and maintenance needs.

The grizzly bear management amendment

- Could maintain habitat for wildlife, including lynx, plant and aquatic species
- Would not affect mineral and energy development, or land acquisition
- Would have no net change on grazing or developed recreation

Forest Plan amendment for wildland fire management on the Bridger-Teton National Forest

The Bridger-Teton NF is preparing a programmatic EA to change existing plan objectives, standards and guidelines for management of wildland fire outside wilderness areas.

The wildland fire management amendment could

- Maintain and improve habitat for wildlife
- Would not affect mineral and energy development, grazing, recreation or land acquisition

Forest Plan amendment for winter motorized recreation on the Flathead National Forest.

The Flathead NF is preparing a programmatic EIS to add a new forest-wide standard that would incorporate the Winter Recreation Amendment Maps into the Forest Plan, providing direction on where winter motorized use is allowed, restricted and prohibited. Other management direction would be reviewed and clarified as needed to provide clear direction and remove inconsistencies regarding winter motorized access.

The winter motorized recreation amendment could

- Maintain and improve habitat for wildlife
- Would not affect mineral and energy development, grazing, or land acquisition

- Could change user experiences and winter recreation opportunities on the Flathead National Forest.

Actions on lands not part of the Northern Rockies Lynx amendment, but in the Northern Rockies Geographic area.

Past Actions

Yellowston and Grand Teton National Park snowmobile regulations

In March 2003, the Park Service issued a decision about snowmobile use in Yellowstone and Grand Teton National Parks and the John D. Rockefeller, Jr., Memorial Parkway. The decision will limit the number of snowmobiles allowed per day; implement both the best available technology for snowmobiles and an adaptive management program and incorporate guided access for snow machines.

The snowmobiling regulations

- Would maintain habitat for wildlife, plant and aquatic species
- Have no effect on fire management, forest management, transportation systems, mineral and energy development, grazing or land acquisitions
- Could change winter recreation user experiences

Private lands

Several private timber companies have developed lynx management plans, including the Boise-Cascade Corporation in central Idaho and eastern Washington, Plum Creek Timber Company, Ltd. in Idaho and Montana, and Stimson Timber Company in northern Idaho and eastern Washington.

Generally, these plans were developed to respond to the legal requirement that on private lands, a landowner is required to not act in ways that would result in the "taking" of lynx as defined under the Endangered Species Act. Private lands are not required to manage habitat to conserve lynx.

Private-land with lynx management plans

- Could improve habitat conditions for lynx and other wildlife
- Would have no effect on effect on fire management, forest management, transportation systems, mineral and energy development, grazing or land acquisition

Private lands without lynx management plans

- Could reduce the quality and quantity of lynx habitat and habitat for other species.
- Would have no effect on fire management, forest management, transportation systems, mineral and energy development, grazing or land acquisition

Pending actions

Forest Plan revision, amendments on NF and BLM lands not part of this amendment

NF lands inside the geographic area but not part of this amendment are either in the process of revising or will soon

begin revising their plans to incorporate measures to conserve lynx. BLM units will either amend or their revise plans. In the meantime, recommendations from the LCAS are being considered during project planning and implementation.

The following summarizes these planning efforts

- In Region 4, the Payette, Boise, Sawtooth, Caribou, Wasatch-Cache and Unita NFs have nearly completed revision, using information from this amendment
- In Region 6, the Colville, Umatilla, Wallowa-Whitman, Malheur and Ochoco NFs will address lynx later
- BLM units in Montana are developing a habitat conservation strategy for lynx (*Federal Register*, Vol. 68, No. 81, p 22412-22414). In Wyoming and Utah, BLM units are undergoing a similar process.

Proposed Issuance of an Incidental Take Permit to the Montana Department of Natural Resources and Conservation on Forested State Trust Lands in Montana

The Fish and Wildlife Service is preparing an EIS to address the proposed issuance of an incidental take permit to allow take of species on State Trust lands administered by the Montana DNRC (Department of Natural Resources and Conservation) for activities primarily related to forest management. The DNRC is preparing a HCP (Habitat Conservation Plan) as part of the application for the permit. (*Federal Register*, Vol. 68. No. 81, pp. 22412-22414, April 28, 2003).

For the proposed HCP, the DNRC would develop specific conservation measures for the following categories: biodiversity and silviculture, road management, watershed/riparian areas, grazing on classified forest lands, weed management, land use planning, administration and implementation.

The development of an HCP and issuance of a taking permit

- Could improve habitat for wildlife, plant and aquatic species
- Could reduce timber harvest on state lands
- Could reduce areas available for precommercial thinning on state lands
- May change recreational user experiences
- Would not affect mineral and energy development, or land acquisition
- May change grazing practices on state lands

Appendix M – FIA analysis for fuel treatment

Assumptions:

- Treatments would occur equally everywhere
- WUI (wildland urban interface) is defined as within one mile of human habitation, which is conservatively defined as just one structure in ten square miles
- Analysis is for Montana only
- 3,578,000 acres in Montana are inside the WUI – 1,685,000 acres are lynx habitat and 1,893,000 are not
- 8,335,000 acres in Montana are outside the WUI – 5,519,000 acres are lynx habitat and 2,816,000 acres are not
- In Montana about 54,000 acres of fuel treatments are planned per year
- *38,000 acres* of fuel treatment would occur inside the
- *16,000 acres* of fuel treatment would occur outside the WUI
- *High density* winter snowshoe hare foraging habitat is 5,000+ trees per acre in young forests and 2,500+ trees per acre in multistoried forests
- *Low density* winter snowshoe hare foraging habitat is 2,500 to 5,000 trees per acre in young forests and 1,000 to 2,500+ trees per acre in multistoried forests

Table M-1. Fuel treatment in Montana

Forage category	Forage category acres		Montana acres		Percent		Montana R1 fuel treatment acres		Annual Montana fuel treatment		10 years per decade		Montana fuel treatment per decade
Inside WUI													
High density	382,000	÷	3,578,000	=	10%	x	38,000	=	3,800 acres	x	10	=	38,000 acres
Low density	307,000	÷	3,578,000	=	9%	x	38,000	=	3,420 acres	x	10	=	34,200 acres
Lynx habitat but not good forage	996,000	÷	3,578,000	=	28%	x	38,000	=	10,640 acres	x	10	=	106,400 acres
Not lynx habitat	1,893,000	÷	3,578,000	=	53%	x	38,000	=	20,140 acres	x	10	=	201,400 acres
Outside WUI													
High density	1,460,000	÷	8,335,000	=	17%	x	16,000	=	2,720 acres	x	10	=	27,200 acres
Low density	1,065,000	÷	8,335,000	=	13%	x	16,000	=	2,080 acres	x	10	=	20,800 acres
Lynx habitat but not good forage	2,994,000	÷	8,335,000	=	36%	x	16,000	=	5,760 acres	x	10	=	57,600 acres
Not lynx habitat	2,816,000	÷	8,335,000	=	34%	x	16,000	=	5,440 acres	x	10	=	54,400 acres

Table M-2. Montana fuel treatment by forage category & WUI next decade

Forage category treated	Inside WUI		Outside WUI		Totals
High density	38,000	+	27,200	=	65,000 acres
Low density	34,200	+	20,800	=	55,000 acres
Lynx habitat but not good forage	106,400	+	57,600	=	164,000 acres
Not lynx habitat	201,400	+	54,400	=	255,800 acres

Table M-3. Montana fuel treatment by forage category & alternative next decade

Forage category treated	Alt A	Alt B	Alt C	Alt D	Alt E
Lynx habitat in forage condition	120,000	60,000	0	0	120,000
Lynx habitat but not good forage	160,000	160,000	160,000	160,000	160,000
Not lynx habitat	260,000	342,000	380,000	380,000	260,000
Total fuels treatment	540,000	540,000	540,000	540,000	540,000

Table M-4. Montana fuel treatment in lynx habitat by forage category, alternative & WUI next decade

	Alt A	Alt B	Alt C	Alt D	Alt E
Inside WUI					
High density young	15,000	8,000	0	0	15,000
High density multistoried	23,000	11,000	0	0	23,000
Low density young	11,000	6,000	0	0	11,000
Low density multistoried	23,000	11,000	0	0	23,000
Outside WUI					
High density young	11,000	6,000	0	0	11,000
High density multistoried	16,000	8,000	0	0	16,000
Low density young	8,000	4,000	0	0	8,000
Low density multistoried	13,000	6,000	0	0	13,000
Total fuel treatment	120,000	60,000	0	0	120,000

Assumptions

- Treated acres are proportional to their occurrence, regardless of any other factors
- Alternative B assumes 50 percent of the fuel treatment in multistoried would be done without precommercial thinning, and that half the good forage that's not treated would shift to non-lynx habitat.
- Alternatives C and D assume fuel treatment acres would shift from good forage to non-lynx habitat.

Table M-5. Montana fuel treatment acres relocated by forage category, alternative & WUI next decade

	Alt A	Alt B	Alt C	Alt D	Alt E
Inside WUI					
High density young	0	7,000	15,000	15,000	0
High density multistoried	0	12,000	23,000	23,000	0
Low density young	0	6,000	11,000	11,000	0
Low density multistoried	0	11,000	23,000	23,000	0
Outside WUI					
High density young	0	5,000	11,000	11,000	0
High density multistoried	0	8,000	16,000	16,000	0
Low density young	0	4,000	8,000	8,000	0
Low density multistoried	0	7,000	13,000	13,000	0
Total relocated	0	60,000	120,000	120,000	0

Appendix N – Management direction for the preferred alternative, Alternative E

All programs and activities – applies to lynx habitat in LAUs & linkage areas subject to valid existing rights

Goal[12]

Conserve the Canada lynx.

Objective[25] ALL O1

Maintain[22] or restore[33] lynx habitat[19] connectivity[14] in and between LAUs[17], and in linkage areas[18].

Standard[36] ALL S1

New or expanded permanent developments[28] and vegetation management projects[41] must maintain[22] habitat connectivity[14].

Standard ALL S2

A project proposal that deviates from one or more lynx standards may proceed without amending the plan, subject to ESA requirements, either:

1. If a written determination is made that the project is not likely to adversely affect lynx; or
2. If it may result in short-term adverse effects on lynx but if long-term benefits to lynx and its habitat would result.

Guideline[13] ALL G1

Methods to avoid or reduce effects on lynx should be used when constructing or reconstructing highways[15] or forest highways[10] across federal land. Methods could include fencing, underpasses or overpasses.

Specific programs and activities – applies only to lynx habitat in LAUs, subject to valid existing rights

LAU boundaries

Standard[36] LAU S1

LAU[17] boundaries will not be adjusted except through agreement with the FWS, based on new information about lynx habitat[19].

Vegetative management activities and practices

Objective[25] VEG O1

Manage vegetation to be more similar to historic succession and disturbance processes while maintaining habitat components necessary for the conservation of lynx.

Objective VEG O2

Maintain or improve lynx habitat[19], emphasizing high-quality winter snowshoe hare habitat[42] near denning habitat[4].

Objective VEG O3

Conduct fire use[9] activities to restore[33] ecological processes and maintain or improve lynx habitat.

Objective VEG O4

Design regeneration harvest, reforestation and thinning to develop characteristics suitable for winter snowshoe hare habitat.

Standard VEG S1

Unless a broad scale assessment[2] has been completed that substantiates different historic levels of unsuitable habitat[20], limit disturbance in each LAU or in a combination of immediately adjacent LAUs as follows:

If more than 30 percent of the lynx habitat in an LAU or a combination of immediately adjacent LAUs is currently in unsuitable condition[20], no additional habitat may be made unsuitable by vegetation management projects[41].

This standard does not apply to fuel treatment[11] projects identified through processes such as that described in A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment 10-Year Comprehensive Strategy Implementation Plan.

Use the same analysis boundaries for all vegetation management projects subject to this standard.

Standard VEG S3

Maintain at least ten percent of the lynx habitat in an LAU as denning habitat[4] in patches generally larger than five acres.

Where less than ten percent denning habitat is present in an LAU, either:

1. Defer vegetation management projects[20] in stands that have the highest potential to develop denning habitat; or
2. Move towards ten percent denning habitat by leaving enough standing trees and coarse woody debris to be similar to what would be there naturally.

This standard does not apply to fuel treatment projects identified through processes such as that described in A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment 10-Year Comprehensive Strategy Implementation Plan.

Standard VEG S5

Precommercial thinning[30] projects that reduce winter snowshoe hare habitat during the stand initiation structural stage may occur only:

1. Within 200 feet of administrative sites, dwellings or outbuildings; or
2. For research studies[32] or genetic tree tests evaluating genetically improved reforestation stock; or
3. For fuel treatment projects identified through processes such as that described in A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment 10-Year Comprehensive Strategy Implementation Plan.

Guideline VEG G1

Vegetation management projects should be planned to recruit a high density of conifers, hardwoods and shrubs where such habitat is scarce or not available Priority should be given to stem-exclusion, closed-canopy structural stage[38].

Winter snowshoe hare habitat should be near denning habitat.

Vegetation management projects should be planned to extend the production of winter snowshoe hare habitat when forage quality and quantity is declining.

Guideline VEG G3

Vegetation management projects designed to retain or restore[33] denning habitat should be located where there is a low probability of stand-replacing fire.

Guideline VEG G4

Fire use[9] activities should not create permanent travel routes that facilitate snow compaction.

Constructing permanent firebreaks on ridges or saddles should be avoided.

Guideline VEG G5

Habitat for alternate prey species, primarily red squirrel[31], should be provided in each LAU.

Guideline VEG G7

After a disturbance that kills trees in areas five acres or smaller which could contribute to lynx denning habitat, salvage harvest[34] should not occur unless at least ten percent denning habitat in an LAU is retained and well distributed.

Guideline VEG G8

Vegetation management projects[41] should maintain[22] winter snowshoe hare habitat[42] during the understory reinitiation[40] or old-multistory structural stages[26], and may be used to maintain and improve lynx habitat where dense understories are lacking.

Livestock grazing and practices

Objective[25] GRAZ O1

Manage livestock grazing to be compatible with improving or maintaining[22] lynx habitat[19].

Guideline[13] GRAZ G1

In fire- and harvest-created openings, livestock grazing should be managed so that impacts do not prevent shrubs and trees from regenerating.

Guideline GRAZ G2

In aspen stands, livestock grazing should be managed to contribute to their long-term health and sustainability.

Guideline GRAZ G3

In riparian areas and willow carrs, livestock grazing should be managed to contribute to maintaining or achieving a preponderance of mid- or late-seral stages[24], similar to conditions that would have occurred under historic disturbance regimes.

Guideline GRAZ G4

In shrub-steppe habitats[35], livestock grazing should be managed in the elevation ranges of forested lynx habitat in LAUs, to contribute to maintaining or achieving a preponderance of mid- or late-seral stages, similar to conditions that would have occurred under historic disturbance regimes.

Human uses management activities and practices

Objective[25] HU O1

Maintain[22] the lynx's natural competitive advantage over other predators in deep snow, by discouraging the expansion of snow-compacting activities in lynx habitat[19].

Objective HU O2

Manage recreational activities to maintain lynx habitat and connectivity.

Objective HU O3

Concentrate activities in existing developed areas, rather than developing new areas in lynx habitat.

Objective HU O4

Provide for lynx habitat needs and connectivity when developing new or expanding existing developed recreation[7] sites or ski areas.

Objective HU O5

Manage human activities – such as exploring and developing minerals and oil and gas, placing utility corridors and permitting special uses – to reduce impacts on lynx and lynx habitat.

Objective HU O6

Reduce adverse highway[15] effects on lynx by working cooperatively with other agencies to provide for lynx movement and habitat connectivity[14], and to reduce the potential of lynx mortality.

Guideline[13] HU G1

When developing or expanding ski areas, provisions should be made for adequately sized inter-trail islands that include coarse woody debris, so winter snowshoe hare habitat[42] is maintained.

Guideline HU G2

When developing or expanding ski areas, nocturnal foraging should be provided consistent with the ski area's operational needs, especially where lynx habitat occurs as narrow bands of coniferous forest across mountain slopes.

Guideline HU G3

Recreation developments and operations should be planned in ways that both provide for lynx movement and maintain the effectiveness of lynx habitat.

Guideline HU G4

For mineral and energy development sites and facilities, remote monitoring should be encouraged to reduce snow compaction.

Guideline HU G5

For mineral and energy development sites and facilities that are closed, a reclamation plan that restores[33] lynx habitat should be developed.

Guideline HU G6

Methods to avoid or reduce effects on lynx should be used in lynx habitat when upgrading unpaved roads to maintenance levels 4 or 5, if the result would be increased traffic speeds and volumes, or a foreseeable contribution to increases in human activity or development.

Guideline HU G7

New permanent roads should not be built on ridge-tops and saddles, or in areas identified as important for lynx habitat connectivity[14].

New permanent roads and trails should be situated away from forested stringers.

Guideline HU G8

Cutting brush along low-speed[21], low-traffic-volume roads should be done to the minimum level necessary to provide for public safety.

Guideline HU G9

On new roads built for projects, public motorized use should be restricted. Effective closures should be provided in road designs. When the project is over, these roads should be reclaimed or decommissioned, if not needed for other management objectives.

Guideline HU G10

When developing or expanding ski areas and trails, access roads and lift termini should be located to maintain and provide lynx diurnal security[8] habitat.

Guideline HU G11

Designated over-the-snow routes[5] or play areas should not expand outside baseline areas of consistent snow compaction[1] by LAU or in a combination of immediately adjacent LAUs, unless designation serves to consolidate use and improve lynx habitat.

This does not apply inside permitted ski area boundaries, to winter logging, to rerouting trails for public safety, to accessing private inholdings or where regulated by HU G12.

Use the same analysis boundaries for all actions subject to this guideline.

Guideline HU G12

Winter access for non-recreation special uses and mineral and energy exploration and development, should be limited to designated routes[6] or designated over-the-snow routes[5].

Linkage areas – applies to linkage areas, subject to valid existing rights

Objective[25] LINK O1

In areas of intermingled land ownership, work with landowners to pursue conservation easements, habitat conservation plans, land exchanges or other solutions to reduce the potential of adverse impacts on lynx and lynx habitat.

Standard[36] LINK S1

When highway[15] or forest highway[10] construction or reconstruction is proposed in linkage areas[18], identify potential highway crossings.

Guideline[13] LINK G1

NFS and BLM lands should be retained in public ownership.

Guideline LINK G2

Livestock grazing in shrub-steppe habitats should be managed to contribute to maintaining or achieving a preponderance of mid- or late-seral stages[24], similar to conditions that would have occurred under historic disturbance regimes.

Monitoring

Map the location and amount of snow-compacting use that coincided with lynx habitat[19] in LAUs[17] during the 1998-2000 seasons for designated over-the-snow[5] and groomed routes and areas, and areas of consistent snow compaction[1]. Such activities include snowmobiling, snowshoeing, cross-country skiing, dog sledding, etc

Annually monitor the acres of vegetation management projects[41] that occurred in lynx habitat and in winter snowshoe hare habitat[42] during the previous fiscal year.

Document and evaluate the conditions under which Standard All S2 is applied.

Glossary

[1] *Areas of consistent snow compaction* – An area of consistent snow compaction is an area of land or water that during winter is generally covered with snow and gets enough human use that individual tracks are indistinguishable. In such places, compacted snow is evident most of the time, except immediately after (within 48 hours) snowfall. These can be areas or linear routes, and are generally found in near snowmobile or cross-country ski routes, in adjacent openings, parks and meadows, near ski huts or plowed roads, or in winter parking areas. Areas of consistent snow compaction will be determined based on the area or miles used in 1998, 1999 or 2000.

[2] *Broad scale assessment* – A broad scale assessment is a synthesis of current scientific knowledge, including a description of uncertainties and assumptions, to provide an understanding of past and present conditions and future trends, and a characterization of the ecological, social and economic components of an area. (LCAS)

[3] *Daylight thinning* – Daylight thinning is a form of precommercial thinning that removes the trees inside a given radius around trees.

[4] *Denning habitat (lynx)* – Denning habitat is the environment lynx use when giving birth and rearing kittens until they are mobile. The most common component is large amounts of coarse woody debris to provide escape and thermal cover for kittens. Denning habitat must be within daily travel distance of winter snowshoe hare habitat –

the typical maximum daily distance for females is about three to six miles. Denning habitat includes mature and old growth[24] forests with plenty of coarse woody debris. It can also include young regenerating forests with piles of coarse woody debris, or areas where down trees are jack-strawed.

[5] *Designated over-the-snow routes* – Designated over-the-snow routes are routes managed under permit or agreement or by the agency, where use is encouraged, either by on-the-ground marking or by publication in brochures, recreation opportunity guides or maps (other than travel maps) or in electronic media produced or approved by the agency. The routes identified in outfitter and guide permits are designated by definition; groomed routes also are designated by definition. The determination of baseline snow compaction will be based on the miles of designated over-the-snow routes authorized, promoted or encouraged in 1998, 1999 or 2000.

[6] *Designated route* – A designated route is a road or trail that has been identified as open for specified travel use.

[7] *Developed recreation* – Developed recreation requires facilities that result in concentrated use. For example, skiing requires lifts, parking lots, buildings and roads; campgrounds require roads, picnic tables and toilet facilities.

[8] *Diurnal security habitat (lynx)* – Diurnal security habitat amounts to places in lynx habitat that provide secure winter daytime bedding sites for lynx in highly disturbed landscapes like ski areas. Security habitat gives lynx the ability to retreat from human disturbance during the day, so they can emerge at dusk to hunt when most human activity stops. Forest structures that make human access difficult generally discourage human activity in security habitats. Security habitats are most effective if big enough to provide visual and acoustic insulation and to let lynx easily move away from any intrusion. They must be close to winter snowshoe hare habitat. (LCAS)

[9] *Fire use* – Fire use is the combination of wildland fire use and using prescribed fire to meet resource objectives. (NIFC) Wildland fire use is managing naturally ignited wildland fires to accomplish resource management objectives in areas that have a fire management plan. This term replaces prescribed natural fire. (Wildland and Prescribed Fire Management Policy, August 1998)

[10] *Forest highway* – A forest highway is a forest road under the jurisdiction of, and maintained by, a public authority and open to public travel (USC: Title 23, Section 101(a)), designated by an agreement with the FS, state transportation agency and Federal Highway Administration.

[11] *Fuel treatment* – A fuel treatment is a management action that reduces the threat of ignition and fire intensity or rate of spread, or is used to restore fire-adapted ecosystems.

[12] *Goal* – A goal is a broad description of what an agency is trying to achieve, found in a land management plan. (LCAS)

[13]*Guideline* – A guideline is a particular management action that should be used to meet an objective found in a land management plan. The rationale for deviations may be documented, but amending the plan is not required. (LCAS modified)

[14] *Habitat connectivity (lynx)* – Habitat connectivity consists of an adequate amount of vegetative cover arranged in a way that allows lynx to move around. Narrow forested mountain ridges or shrub-steppe plateaus may serve as a link between more extensive areas of lynx habitat; wooded riparian areas may provide travel cover across open valley floors. (LCAS)

[15] *Highway* – The word highway includes all roads that are part of the National Highway System. (23 CFR 470.107(b))

[16] *Isolated mountain range* – Isolated mountain ranges are small mountains cut off from other mountains and surrounded by flatlands. On the east side of the Rockies, they are used for analysis instead of sub-basins. Examples are the Little Belts in Montana and the Bighorns in Wyoming.

[17] *LAU (Lynx Analysis Unit)* – An LAU is an area of at least the size used by an individual lynx, from about 25 to 50 mi2 (LCAS). An LAU is a unit for which the effects of a project would be analyzed; its boundaries should remain constant.

[18] *Linkage area* – A linkage area provides connectivity between blocks of lynx habitat. Linkage areas occur both within and between geographic areas, where basins, valleys or agricultural lands separate blocks of lynx habitat, or where lynx habitat naturally narrows between blocks. (LCAS updated definition approved by the Steering Committee 10/23/01)

[19] *Lynx habitat* – Lynx habitat occurs in mesic coniferous forest that experience cold, snowy winters and provide a prey base of snowshoe hare. In the northern Rockies, lynx habitat is generally occurs between 3,500 and 8,000 feet of elevation, and primarily consists of lodgepole pine, subalpine fir and Engelmann spruce. It may consist of cedar-hemlock in extreme northern Idaho, northeastern Washington and northwestern Montana, or of Douglas fir on moist sites at higher elevations in central Idaho. It may also consist of cool, moist Douglas fir, grand fir, western larch and aspen when interspersed in subalpine forests. Dry forests do not provide lynx habitat. (LCAS)

[20] *Lynx habitat in an unsuitable condition* – Lynx habitat in an unsuitable condition consists of lynx habitat in the stand initiation structural stage where the trees are generally less than ten to 30 years old and have not grown tall enough to protrude above the snow during winter.

Stand replacing fires or certain vegetation management projects can result in unsuitable conditions. Vegetation management projects that can result in unsuitable habitat

include clearcuts and seed tree harvest, and sometimes shelterwood cuts and commercial thinning depending on the resulting stand composition and structure. (LCAS)

[21] *Low-speed, low-traffic-volume road* – Low speed is less than 20 miles per hour; low volume is a seasonal average daily traffic load of less than 100 vehicles per day.

[22] *Maintain* – In the context of this amendment, to maintain means to provide enough lynx habitat to conserve lynx. It does not mean to keep the status quo.

[23] *Maintenance level* – Maintenance levels define the level of service provided by and maintenance required for a road. (FSH 7709.58, Sec 12.3) Maintenance level 4 is assigned to roads that provide a moderate degree of user comfort and convenience at moderate travel speeds. Most roads are double lane and aggregate surfaced. Some may be single lane; some may be paved or have dust abated. Maintenance level 5 is assigned to roads that provide a high degree of user comfort and convenience. Normally, roads are double-lane and paved, but some may be aggregate surfaced with the dust abated.

[24] *Mid-seral or later* – Mid-seral is the successional stage in a plant community that's the midpoint as it moves from bare ground to climax. For riparian areas, it means willows or other shrubs have become established. For shrub-steppe areas, it means shrubs associated with climax are present and increasing in density.

[25] *Objective* – An objective is a statement in a land management plan describing desired resource conditions and intended to promote achieving programmatic goals. (LCAS)

[26] *Old multistory structural stage* – Many age classes and vegetation layers mark the old forest, multistoried stage. It usually contains large old trees. Decaying fallen trees may also be present that leave a discontinuous overstory canopy. On cold or moist sites without frequent fires or other disturbance, multi-layer stands with large trees in the uppermost layer develop. (Oliver and Larson, 1996)

[27] *Old growth* – Old growth forests generally contain trees that are large for their species and site, and are sometimes decadent with broken tops. Old growth often contains a variety of tree sizes, large snags and logs, and a developed and often patchy understory.

[28] *Permanent development* – A permanent development is any development that results in a loss of lynx habitat for at least 15 years. Ski trails, parking lots, new permanent roads, structures, campgrounds and many special use developments would be considered permanent developments.

[29] *Prescribed fire* – A prescribed fire is any fire ignited as a management action to meet specific objectives. A written, approved prescribed fire plan must exist, and NEPA requirements met, before ignition. The term replaces management ignited prescribed fire. (NWCG)

[30] *Precommercial thinning* – Precommercial thinning is mechanically removing trees to reduce stocking and concentrate growth on the remaining trees, and not resulting in immediate financial return. (Dictionary of Forestry)

[31] *Red squirrel habitat* – Red squirrel habitat consists of coniferous forests of seed and cone-producing age that usually contain snags and downed woody debris, generally associated with mature or older forests.

[32] *Research* – Research consists of studies conducted to increase scientific knowledge or technology. For the purposes of Standards VEG S5 and VEG S6, research is limited to studies financed from the forest research budget (FSM 4040) and administrative studies financed from the NF budget.

[33] *Restore, restoration* – To restore is to return or re-establish ecosystems or habitats to their original structure and species composition. (Dictionary of Forestry)

[34] *Salvage harvest* – Salvage harvest is a commercial timber sale of dead, damaged or dying trees. It recovers economic value that would otherwise be lost. Collecting firewood for personal use is not considered salvage harvest.

[35] *Shrub steppe habitat* – Shrub steppe habitat consists of dry sites with shrubs and grasslands intermingled.

[36] *Standard* – A standard is a required action in a land management plan specifying how to achieve an objective or under what circumstances to refrain from taking action. A plan must be amended to deviate from a standard.

[372] *Stand initiation structural stage* – The stand initiation stage generally develops after a stand-replacing disturbance by fire or regeneration timber harvest. A new single-story layer of shrubs, tree seedlings and saplings establish and develop, reoccupying the site. Trees that need full sun are likely to dominate these even-aged stands. (Oliver and Larson, 1996)

[38] *Stem exclusion structural stage* – In the stem exclusion stage, trees initially grow fast and quickly occupy all of the growing space, creating a closed canopy. Because the trees are tall, little light reaches the forest floor so understory plants (including smaller trees) are shaded and grow more slowly. Species that need full sunlight usually die; shrubs and herbs may become dormant. New trees are precluded by a lack of sunlight or moisture. (Oliver and Larson, 1996)

[39] *Timber management* – Timber management consists of growing, tending, commercially harvesting and regenerating crops of trees.

[40] *Understory re-initiation structural stage* – In the understory re-initiation stage, a new age class of trees gets established after overstory trees begin to die, are removed or no longer fully occupy their growing space after tall trees abrade each other in the wind. Understory seedlings then re-grow and the trees begin to stratify into vertical layers. A

low to moderately dense uneven-aged overstory develops, with some small shade-tolerant trees in the understory. (Oliver and Larson, 1996)

[41] *Vegetation management projects* – Vegetation management projects change the composition and structure of vegetation to meet specific objectives, using such means as prescribed fire and timber harvest. For the purposes of this amendment, the term does not include removing vegetation for permanent developments like mineral operations, ski runs, roads and the like, and does not apply to fire suppression or to wildland fire use.

[42] *Winter snowshoe hare habitat* – Winter snowshoe hare habitat consists of places where young trees or shrubs grow dense – thousands of woody stems per acre – and tall enough to protrude above the snow during winter, so hares can browse on the bark and small twigs (Ruediger et al. 2000). Winter snowshoe hare habitat develops primarily in the stand initiation, understory reinitiation and old forest multistoried structural stage

Note: *A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment 10-Year Comprehensive Strategy Implementation Plan* may be found at www.fireplan.gov/reports/9-21-en.pdf.